

## 电力系统

### 基于贝叶斯网的分布式电网故障诊断方法

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#### 摘要:

基于Leaky Noisy-Or贝叶斯网进行动态建模, 提出了一种分布式电网故障诊断方法。该方法采用电网保护测量元件动作信号作为诊断证据。针对诊断模型中的概率参数计算问题, 提出了一种事件采样的先验概率计算方法。针对利用局部信息实现分布式电网故障诊断的问题, 对Leaky Noisy-Or节点模型进行推导, 给出了2个推理, 证明了该分布式方法的可行性。采用逐步排除的方式, 动态建立了元件诊断模型和联合诊断模型, 通过推理计算实现了电网故障诊断。算例证明了该方法的正确性和有效性。

#### 关键词:

### Bayesian Networks Based Distributed Fault Diagnosis Approach for Power Grids

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#### Abstract:

A Leaky Noisy-Or Bayesian network-based dynamic modeling approach, in which actuating signal of measuring element of network protection is taken as diagnosis evidence, is presented for distributed fault diagnosis in power system. In allusion to the probability parameter calculation in diagnosis model, an a priori probability calculation method for event sampling is proposed. For the problem of using local information to implement distributed fault diagnosis of power network, the Leaky Noisy-Or nodal model is derived and two ratiocinations are given to prove the feasibility of this distributed method. By use of gradual exclusion, the element diagnosis model and combined diagnosis model are dynamically built, and through reasoning computation the fault diagnosis of power network is implemented. Calculation examples prove that the proposed method is correct and available.

#### Keywords:

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